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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/667,139

09/17/2003

Norbert Ebel

948-001.002

7192

4955

7590

12/28/2005

WARE FRESSOLA VAN DER SLUYS &  
ADOLPHSON, LLP  
BRADFORD GREEN BUILDING 5  
755 MAIN STREET, P O BOX 224  
MONROE, CT 06468

EXAMINER

CHIAM, DINH D

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/667,139

Applicant(s)

EBEL, NORBERT

Examiner

Erin D. Chiem

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7, 10-14 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-14 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

This office action is in response to the amendment filed on October 11, 2005. Claim 1 is amended and currently claims 1-7, 10-15, and 16 are pending. In view of the amendment the objection to claim 1 is withdrawn.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 10-15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Althaus et al. (US 6,422,766 B1 hereinafter "Althaus") in view of Kluitmans et al. (US 5,065,226 hereinafter "Kluitmans").

Regarding claims 1-6, 10-13, and 16 Althaus teaches a device for sending or receiving optical signals wherein an opto-electrical transducer (laser chip 12), together with an associated glass fiber (23) are arranged on a common support characterized in that

- The support is a circuit board (227'); see Fig. 12 comprising different multiple layers of insulating material (col. 4, lines 29-30) and intermediate layers of metal (conductor tracks), with a recess (visible as white open space in Fig. 13) formed therein containing an opening covered by a lid (329), wherein the lid is made of metal (col. 8, line 15-16), and a bottom on which conductor tracks, configured as microstrips, on the RF conductor track carrier (327B) (col. 12, lines 37-40).

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- The transducer (12) is entirely located in the recess and is connected to the conducting tracks,
- At least some of the conducting tracks protrude laterally from the recess (col. 12, lines 40-41) to the surrounding edge areas of the circuit board (shown in Fig. 11B as the small rectangles on the peripheral) that extend to a common surface on the inside of the circuit board where they respectively end on a contact surface,
- The glass fiber exits from the recess through an opening in the circuit board, and
- An electrically active shield is installed around the circuit board (250).

Regarding claim 16, a Peltier element (211) is located on the bottom of the recess on which heats up the conductor track carrier.

However, Althaus does not explicitly teach that the conductor tracks are impedance-matched as recited in claims 1, 2, 7, and 14 nor does Althaus teach the impedance-matched conductors are designed as coaxial lines with an internal conductor that is connected in a reflection-free manner to the impedance-matched conducting tracks and with feedthrough contacts that are arranged concentrically and interconnectively conduct electricity, as recited in claims 7 and 14.

Kluitmans teaches a laser diode module that comprises of microstrips formed on the bottom of the module (Fig. 3; GT<sub>1</sub> and GT<sub>2</sub>) that are coupled to a coaxial transmission line at matching impedance (col. 9, lines 35-39). Kluitmans further describe the extension of the microstrips through the coaxial transmission line to the external module (col. 9, lines 59-62). In order for the connection to be in a reflection-free manner, the inside diameter of the feedthrough is chosen such that the characteristic impedance of a coaxial transmission line is equal to that of

the external microstrip. Furthermore, the ratio between the inside diameter of the outer guide of the coaxial transmission line and the outside diameter of the inner guide, with a given dielectric constant of the medium between the guides, the characteristic impedance of the coaxial transmission line can be matched to that of the microstrip line (col. 9, lines 33-49).

Since Althaus and Kluitmans are both in the same field of endeavor, the purpose of providing a reflection-free connection between the coaxial transmission and the microstrips of the laser module as taught by Kluitmans would have been recognized in the art of Althaus.

It would have been obvious to one having ordinary skill in the art to follow the method steps as disclosed by Kluitmans such that the impedance characteristics of the coaxial transmission lines and the microstrips are matched. **The motivation** for impedance-matching the coaxial transmission lines and the microstrips is to provide a smooth transition between the low impedance of the laser module (3 to 5 ohms) and the high impedance of the driver circuit (25 to 50 ohms) such that the current flow is balanced.

### ***Response to Arguments***

Applicant's arguments filed on October 11, 2005 have been fully considered but they are not persuasive. Applicant does not consider the reference as a whole when applicant alleged that Kluitmans does not teach a recess from looking at Figure 3. Figure 3 is a view of the underside of the module in Fig. 1. In Fig. 1, the black lines connecting the optoelectronic device to pins 7-9 clearly shows that the bottom of the module is a printed circuit board with conducting tracks (GT<sub>1</sub> and GT<sub>2</sub>) are installed.

Regarding the argument that the transducer is not entirely located in a recess, please see Fig. 2. element symbol LD with respect to walls T, FL, B, and SW<sub>3</sub>.

Regarding Kluitmans' reference not teaching the conductive track protrude laterally; the examiner agrees and have addressed this limitation in the rejection above.

Regarding the argument that Kluitmans does not teach impedance-matched conductors that extend to a common surface on the side of the circuit board 1 where they respectively end on a contact surface, please see Fig. 5 for all of the electrical connections made to the pin at the bottom of the circuit and also the bottom of the module. The bottom of the module may be interpreted as a common surface on the inside of the circuit board and they respectively end on the contact surface on the underside of the module.

Regarding the argument that Kluitmans' reference does not teach a circuit board contains multiple layers of insulation material and intermediate layers of metal; the examiner agrees and have addressed this limitation in the rejection above.

However, in view of the amendment the non-persuasive arguments are addressed in the new grounds of rejection of Althaus in view of Kluitmans.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

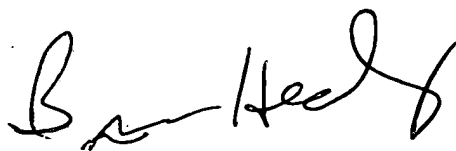
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erin D Chiem  
Examiner  
Art Unit 2883



**Brian Healy**  
**Primary Examiner**